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GEOGRAPHIC SCHOOL BULLETINS

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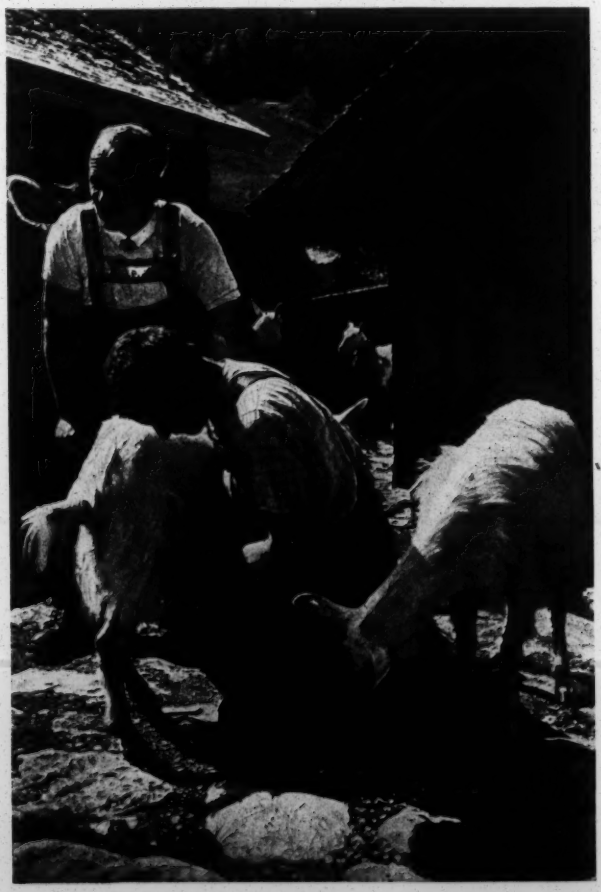

FREE FROM WAR, NEUTRAL SWISS ARE BUSY AT PEACEFUL DAIRY CHORES

In few places in Europe except neutral Switzerland could two able-bodied men of military age be peacefully milking goats. Though the country has about one and a half million cattle, the world-famed dairy industry is reinforced by more than 200,000 goats, whose milk is suitable for drinking and for cheese-making as well. This goat herd grazes on hilly pastures of the Canton of Appenzell, in northeastern Switzerland near Lake Constance, St. Gallen, and the German frontier. Once ruled from Austria, Appenzell rebelled in 1405 and in the following century joined the Swiss Confederation. Soon after, the Swiss tradition of neutrality was born, which has preserved the small Alpine country from involvement in any of the world's recent conflicts. Only nine sovereign nations retained their neutral status at 1943's end (Bulletin No. 5).

Meerkämper

GEOGRAPHIC SCHOOL BULLETIN

HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic School Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers in the United States and its possessions for one year upon receipt of 25 cents (stamps or money order); in Canada, 50 cents. Originally entered as second-class matter January 27, 1922; re-entered as of April 27, 1943, Post Office, Washington, D. C., under Act of March 3, 1879. Copyright, 1943, by National Geographic Society, Washington, D. C. International copyright secured. All rights reserved. Quedan reservados todos los derechos.

Bombing of Nauru Hits Jap Diet

BOMBING of the Pacific island of Nauru by U. S. task forces recently was a blow at Japan's food supply.

With millions of tons of phosphate rock, Nauru became one of the principal wartime sources of the fertilizer that maintains productivity on Japan's farms. Steep mountain slopes make four-fifths of Japan's main islands unsuitable for farming. The remaining fraction of the land must be intensively cultivated, and the small crowded farms—averaging less than three acres each—require large quantities of fertilizer.

Before the war, Japan imported for fertilizer as much as a million tons of phosphate rock a year, chiefly from the United States, Egypt, and French North Africa. The war has cut off fertilizer imports from most sources other than Nauru, and thereby heightened the importance of the kidnapped Pacific isle, which Japanese forces seized early in this war.

One-third of Population Was Chinese

Before its capture, the island was governed as a British Empire mandate. Most of its peacetime exports of phosphates had been sent to Australia and New Zealand, some 2,400 miles to the southwest.

Nauru is a roughly oval-shaped coral atoll, solitary in the mid-Pacific 26 miles south of the Equator, just west of the International Date Line. About three miles wide and four miles long, it rises 225 feet above the sea, a considerable height in view of the sea-level flatness of neighbor islands. Before the war nearly 3,000 people lived there. This number included about 200 Europeans and 1,000 Chinese. The latter had been working the phosphate deposits.

During the 19th century Nauru was regarded as just another Pacific outpost whose small trading station exchanged pigs and coconuts for tobacco and beer, cloth, sugar, canned goods, and ship biscuits. In 1886 it became a German colony. Under German administration, the commercial preparation of copra was introduced.

Then came the discovery of high-content phosphate of lime in the island's rock structure—a vast quantity of it created by centuries of guano deposits acting chemically on the coral rock. Guano is largely phosphoric acid and nitrogen; coral is mainly lime. Baked together beneath the tropical sun, they made phosphate of lime—a hard, odorless, usually colorless rock from which super-rich fertilizer is extracted. Thereafter Nauru was classed as one of the true treasure islands of the South Seas.

Phosphate Quarried from Coral Pockets

The Anglo-German Pacific Phosphate Company, formed in 1906, worked the deposits in cooperation with the German administration. A plant was built, with crushers and loading bins, and an electric railway was constructed to carry the rock from the plant to the piers. As the island has no natural harbor, the phosphate company blasted a hole in the surrounding coral reef to admit boats, and installed better dock facilities as shipments grew in volume and value.

The company hired a German and a British manager, each with his own staff. In their separate foreign colonies, homesick Germans recalled their native land by naming their imported houses "Berlin," "Stuttgart," and "Cologne," while the British lived in homes named for English and Dominion places.

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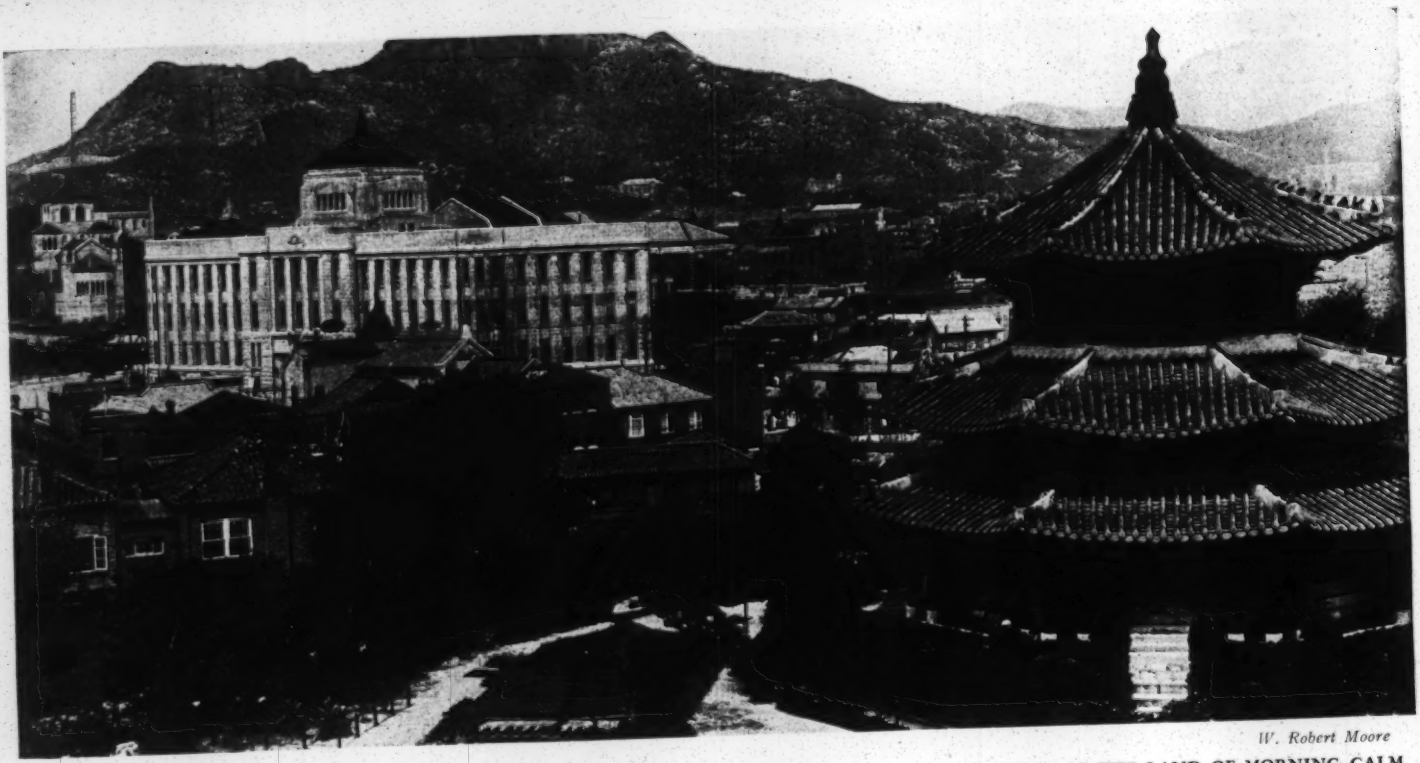

W. Robert Moore

KOREA'S RUGGED GRANITE HILLS ENCLOSE ARCHITECTURAL CONTRASTS IN SEOUL (KEIJO), CAPITAL OF THE LAND OF MORNING CALM

Bridging the gap between ancient Korean architecture and the innovations of Japanese conquerors, modern two- and three-story brick buildings (left) have risen in Korea's ancient capital, Seoul. These structures have in common with the triple-roofed old Temple of Heaven (right) their heavy ridged tile roofs; with the massive granite Municipal Center building behind them they share the western-style right-angle corners and double-sashed windows which the Japanese introduced when they took over the country in 1910. The radio towers at the left are another evidence of Seoul's transformation from a medieval capital to a modern city. Seoul is just north of the Han River. Founded in 1392, it was originally named Hanyang, meaning Fortress on the Han. The Japanese changed its Korean name of Seoul, or "capital," to Keijo, which means "capital" in Japanese. Climbing the lower slopes of the mountain ridge in the background are old temples and palaces of Korean kings who reigned for more than six centuries before the Japs arrived (Bulletin No. 2).

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Japan's Condemned Empire Was 50 Years in the Making

THE sunset of the Empire of the Rising Sun was foreshadowed by the announcement at Cairo that Britain, the United States, and China have resolved to strip Japan of territories acquired "by greed and violence." This will clip Dai Nippon back to its area of 50 years ago. For Japan made her first big steal in 1895—the seizure from China of Formosa and the Pescadores.

Japan was a mere miscellany of medieval agricultural islands in 1854, when Commodore Perry of the U. S. Navy lifted the lid of that Oriental Pandora's box. For 223 years of isolation no Japanese had been permitted to leave the islands' atmosphere of feudalism. Not until 1870 were feudal castes abolished and commoners permitted to use their own family names instead of their masters'. Warriors were encouraged to cut off their topknots of long hair and stop wearing swords. When the lid finally came off, Japan began to expand with explosive force.

Move to Mainland Caused Two Wars

China's first losses to Japan followed the short Sino-Japanese War of 1894-95. From this the major Japanese gain was tropical Formosa (Taiwan), an island area nearly twice as large as New Jersey. In addition to welcome supplies of minerals, tea, sugar, and rice, Formosa gave Japan until very recently a virtual world monopoly of camphor. Now the island supports three to five million people, about five per cent of them Japanese. The near-by Pescadores Islands were taken from China at the same time.

Along with these islands Japan wrested from China a toehold on the continent of Asia. China agreed to consider Korea (Chosen) an independent state and ceded the tip of the near-by peninsula of Liaotung, site of the important ports now known as Dairen and Ryojun. At that time Ryojun (Port Arthur) was extensively used by Russia. Russia growled at Japanese encroachment; so Japan hastily gave up the Liaotung Peninsula.

Ten years later Japan waged the Russo-Japanese War to overcome Russia's objections. The peace treaty in 1905, signed at Portsmouth, New Hampshire, recognized Japanese authority over Korea and the Liaotung area. It threw in for good measure the southern half of Sakhalin Island which Japan had renounced 30 years before. The Japanese half of Sakhalin, known as Karafuto, has been an important source of fish, wood, and coal.

World War I Took Japan into Pacific

After the Russo-Japanese War, Japan in 1910 annexed Korea (illustration, inside cover). This first Japanese colony on mainland Asia constitutes a rich one-third of the area of Japan's empire proper. Its peninsular area, 85,249 square miles, nearly equals that of Great Britain, and supports between 22 and 23 million people; three per cent are Japanese. Rice, soybeans, cotton, gold, coal, iron, and other minerals from Korea nourish Japan's people and war industries.

Japan's next expansive spurt was released by an Anglo-Japanese treaty by which England and Japan were allied to protect each other's interests in the Far East. With Britain at war in 1914, Japan also declared war against Germany and took over all German territory in the Far East north of the Equator. The German Pacific islands of the Marshall, Marianas, and Caroline groups, known collectively as Micronesia, thus came into Japanese hands. By the Versailles Treaty

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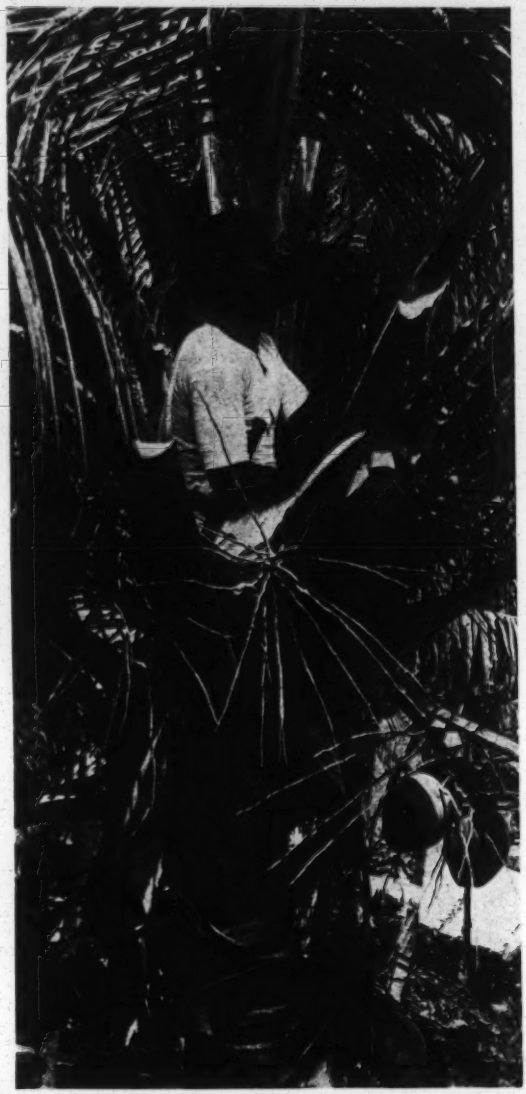
In 1914, Nauru was occupied by an Australian force, and the Germans were deported. In 1918 the island chiefs asked that the island be retained under the rule of King George V. The British administrator then called for a vote from the inhabitants, who gave a unanimous decision in favor of the British. This vote, taken in remote Nauru, became the first of the series of plebiscites of World War I.



A NAURU MIDAS EATS AND DRINKS HIS GOLD

Unlike King Midas, whose food turned to indigestible gold, a Nauruan counts his wealth in edible and drinkable coconuts. He may sell land but retain ownership of trees on it. When rain water to drink is scarce, he drinks the liquid from green coconuts, then eats their soft meat.

The phosphate rock is found deposited in pockets between columns and pinnacles of unchanged coral. Chinese workmen blast and chip out the phosphate and dispatch it on overhead conveyors to the plant.

Native Nauruans excel at the job of loading the crushed rock on ships. If a gust of wind or a high wave tilts the ship and endangers the loading operations, the islanders calmly dive into the sea where they are at home.

Nauruans Live in Coconut Shade

For the most part, the Nauruans build their palm-thatched homes around the island's green edges, in the shade of coconut groves and within earshot of the surf. They live mainly on raw fish, shellfish, and coconuts (illustration, left). They collect coconuts and prepare copra as a money crop.

For Nauru, lying approximately on the Equator, there is no daylight saving problem, as the sun rises at 6 a.m. and sets at 6 p.m. the year around. The island's tropical heat is tempered somewhat by trade winds.

Nauru was initiated into this war by two German sea raiders on December 6, 1941. They found seven ships riding out a gale off Nauru, waiting to load phosphate. Five were sunk. On December 9 the island was bombed by the Japanese.

NOTE: Nauru appears in a large-scale inset on the National Geographic Society's Map of the Pacific Ocean and the Bay of Bengal. A price list of maps may be obtained from the Society's headquarters in Washington, D. C.

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Mushrooms: A Wild Food Tamed for Fine Taste

"PLEASE pass the mushrooms" has been the password among diners trying to stretch their ration coupons.

Experienced gatherers in the autumn were able to collect a variety of edible wild mushrooms from the meadows and woods (a practice not recommended to beginners). Novices have learned to cook the velvety mushrooms available in grocery stores. The protein content of mushrooms gives them a special value as a supplement to rationed meat. Lots of mushrooms and little steak, fresh mushrooms broiled in butter, mushrooms dried black and threaded on long strings for storage, mushroom sauce, mushroom soup—these are some of the roles in which this forest food has been appearing.

In adding this item to their menu, Americans have fallen into step with an old continental European custom, one that has increased in popularity among thousands whose diet has been sharply curtailed by the war. In Great Britain, too, people are following the lead of their neighbors across the English Channel and enjoying mushrooms for new taste experiences. France has long been ladling out savory sauces and soups prepared from mushrooms and truffles.

No One Rule about Wild Mushrooms Distinguishes Good from Bad

The mushroom, botanically, is the fruit of a pale threadlike fungus, a type of organism which lacks the green coloring matter, or chlorophyll, of most other plants. Because chlorophyll is the only substance capable of manufacturing plant food from air and water and minerals, the colorless fungus must find a situation where it can absorb plant food ready-made. It lives underground, therefore, and collects food from decaying vegetable matter in the soil.

The parent fungus, known as mycelium, develops from seedlike microscopic spores which scatter from the gills under a ripe mushroom's cap. By excluding entirely the spores of any non-edible fungi, commercial growers make sure that every mushroom from their carefully guarded mycelium beds is edible.

Gathering wild mushrooms to eat from the numerous species growing in the United States requires vigilance. Scores of varieties are edible and fine-flavored, many are edible but unpalatable, and a few are violently poisonous.

Now known to be wrong are the old sayings that all easy-peeling mushrooms are good, or that all poisonous mushrooms will turn a silver spoon black. Only a scientific identification can distinguish good wild mushrooms from bad. The edible varieties may be recognized after study as certainly as the common flowers, but not by any single rule. For the amateur, a wild mushroom might well be considered a killer until proved innocent—by an experienced gatherer, an expert botanist, or careful identification from pictures and text.

Large Commercial Crop Gives U. S. a New Industry

Abundant in spring, most mushroom species become scarce in summer. Autumn rains bring them back.

Best known and most popular is the common meadow mushroom (*Agaricus campestris*), found wild on wind-swept pastures and lawns. This is the variety grown commercially. Others that can be wild food treats are the puffball, the morel, the truffle, the fairy ring and oyster mushrooms, and the coral fungi.

Mushrooms as food had the approval of Hippocrates, Father of Medicine,

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in 1919 these were allowed to remain under mandate to Japan.

The exception to Japanese control was Guam, largest of the Marianas, which had been a United States possession since the Spanish-American War. Japan captured it in December, 1941.

Under the mandate Japan received control of some 600 coral islands (1,400 if the smaller isles are counted). Their total land area does not exceed 830 square miles; their prewar population was approximately 50,000. Yet they have been incalculably useful to Japanese war lords in providing such bases as Yap in the west and Truk in the east in the Caroline group; Jaluit farther east in the Marshall Islands; and Rota in the Marianas, not 50 miles north of Guam.

With Micronesia being fortified, Japan in 1931 seized Manchuria from China on Asia's mainland (illustration, below). As in the earlier case of Korea, Japan recognized the "protected" territory as an independent state, Manchukuo, with an area of a half-million square miles. Thus the Japanese war machine began rolling on its grim ten-year path to Pearl Harbor.

NOTE: Territory comprising the Japanese Empire and areas occupied by Japan are shown on the Society's Map of the Pacific Ocean.

For further information see "Japan Faces Russia in Manchuria," in the *National Geographic Magazine* for November, 1942, and "Unknown Japan," August, 1942*.

See also these GEOGRAPHIC SCHOOL BULLETINS: "Capture of Gilbert Islands Pierces Japan's Eastern Shield," December 13, 1943; "New Guinea to Tokyo: Pacific Path of Island Stepping-stones," April 5, 1943; and "Measuring Japan's Dominions," October 28, 1940.

Bulletin No. 2, January 3, 1944.

U. S. Department of Agriculture

MANCHUKUO'S EMPIRE BUILDERS LAID A BEANBAG FOUNDATION

Soybeans, especially an improved yellow variety, are the mainstay of business in Manchukuo, the Land of the Golden Bean. Before the war beans alone accounted for 44 per cent of the country's exports. Some were shipped to the United States, though the bulk went to Japan. The puppet kingdom has produced as much as a half-billion tons of beans a year, sometimes more than the rest of the world together. Slow barges bring the bagged beans along the Sungari River to Pinkiang (Harbin), where a human-chain conveyor tramps up the steep slopes of the river bank to unload the bags. Workmen maintain their steady stream up and down by keeping to the left. At Pinkiang the beans are crushed in presses; their oil serves Japan as cooking oil or as the raw material for glycerine, explosives, and other industrial products. The residue from the press is shaped into wheel-like cakes destined as food for humans, fodder for livestock, or fertilizer for Japan's fields.

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Geographic's New Map Shows World in One Piece

THE need of war-news followers for a world map in one piece has been filled by the new World Map prepared by the cartographic staff of the National Geographic Society. War-spurred travelers, too, whose tasks whisk them back and forth between hemispheres, will find this one-piece wall map a convenient background for charting their seven-league-plus hops.

The map was issued to members of the Society with the December, 1943, number of the *National Geographic Magazine*. This rounds out a banner year of map production for the Society, during which 1,200,000 copies of each of five wall maps were distributed to members. Thousands more were printed for use by the armed forces.

The large ten-color chart—41 inches by 21½ inches—is a continuous cartographic picture of the world with the United States in the center. Distances from American seaports and airports to the fighting fronts, as well as the position of the United States with relation to the rest of the world, are easily seen.

Less Distortion for Polar Portions

The "ends of the earth" on this map are defined arbitrarily by the 80th meridian east of Greenwich. This bisects Asia on a line from the Arctic coast of the Asiatic U.S.S.R., between the mouths of the Yenisei and Ob Rivers, southward past the southern tip of India. This dividing line has the advantage of leaving intact in the west the Pacific battleground of the war against Japan, including the Bay of Bengal, and in the east the German battlegrounds, including the Arctic reaches of Finland and occupied Norway.

The map is drawn to Van der Grinten's projection, a 20th-century improvement over the long-popular old projection devised by Mercator in the 16th century. All efforts to represent the round world on a flat map involve some distortion, especially around the North and South Poles, as a price of the convenience of showing the earth's entire area in a single unit. The Van der Grinten projection, however, has less distortion in polar areas than Mercator's, with a more recognizable shape for Greenland (illustration, next page), Iceland, and Australia, for example.

In order to show the polar regions in true perspective, the chart includes two upper-corner insets showing the Northern and Southern Hemispheres centered at the poles.

Boundaries as of September 1, 1939

Interesting features of the new map are the two bottom-corner insets of world maps giving the line-up of belligerents in World Wars I and II. In both insets the physical preponderance of the Allies over Germany and German satellites is readily seen. It also is apparent that the present conflict is more of a world war than the previous one, as 1943's close saw only nine precariously neutral nations left.

Boundaries are shown as of September 1, 1939, the day war accelerated its pace in western Europe. Thus Germany is pictured swollen with the quick conquests of Austria and Czechoslovakia, but not bloated with seized sections of Poland, Denmark, Belgium, and France. Pre-Pearl Harbor alignments in the Pacific are observed.

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born on the embattled island of Cos (Coo) in the Dodecanese about 460 B.C. For centuries the French have cultivated them in deep caves, developing them into a crop of export volume. Mushroom cellars in Paris reach underground 160 feet, and before the war some growers harvested yields of 3,000 pounds a day.

The United States' appreciation of mushrooms is seen in the size of the commercially cultivated crop. The mushroom industry was non-existent at the turn of the century. Thirty years ago this country was importing about 38 million pounds a year, mainly from France and China. But the home-grown crop totalled 48 million pounds in 1942.

Growers in Chester County, Pennsylvania (illustration, below), pioneered the industry, around West Chester and Kennett Square. This fertile area still produces two-thirds of the commercial crop. Mushrooms are now grown also near Boston, New York, Cleveland, Chicago, Kansas City, and San Francisco.

Contain Protein and Vitamins

Once mushrooms were regarded as a garnish for foods of known nutritive value, such as beefsteak. Now they are respected as a food in themselves. About 90 per cent water, they contain nearly four per cent protein and some iron, copper, calcium, phosphorus, and potassium. Recent investigations have revealed the presence of riboflavin, nicotinic and pantothenic acids, and vitamins B_1, C, and K.

NOTE: For further information on mushrooms and other foods, see "Revolution in Eating," in the *National Geographic Magazine* for March, 1942.

Bulletin No. 3, January 3, 1944.

J. Baylor Roberts

TAME MUSHROOMS GET THEIR FIRST DRINK OF WATER WHEN FULL GROWN

Mushroom beds, on broad shelves layered one above the other in windowless air-conditioned houses, are not sprinkled until the mushrooms are big enough to pick. Thereafter the bed can be watered sparingly with a very fine spray. Work is lighted by miners' lamps attached to the caps of the workmen (right). Perfect cleanliness and a constant temperature around 55 degrees must be maintained. Six weeks or two months after the tangled white threads of mycelium are buried in the beds, white buttons of mushrooms push their round bald heads from the dark soil into the dark air. For as long as four or five months the mushroom crop may be harvested from a bed, about a pound or two of mushrooms per square foot. Then the bed is thrown out, a new one is made, new mycelium buried, and a new crop starts. The career of the cultivated mushroom, if destined for canning, is just one shelf after another: a bed on a shelf, a grocery shelf, a pantry shelf.

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Geo-Graphic Brevities

NINE NEUTRALS LEAVE 93 PER CENT OF WORLD AT WAR

TURKEY'S friendly turn toward the Allies draws attention to the neutral nations isolated in the midst of war. Their small number shows how nearly the present conflict lives up to its name of World War.

Only nine of at least 66 sovereign or self-governing countries claim to be neutral. They are Argentina, Afghanistan, Eire, Portugal, Saudi Arabia, Spain, Sweden, Turkey, and Switzerland (illustration, cover).

Cross from this small list the countries that have indicated which side they are "neutral against"—Turkey, Portugal, and Saudi Arabia against the Axis; Spain and Argentina against the United Nations—and only four strict neutrals are left.

The nine nominal neutrals comprise less than seven per cent of the world's land area, and slightly more than five per cent of its population. Together (including the colonies of Spain and Portugal) they would be larger than the United States and territories, but their combined population is considerably less than that of the United States.

Twice as many countries "sat out" World War I, including such currently involved nations as The Netherlands, Norway, Denmark, Persia (Iran), Ethiopia, and Mexico. The first World War barely scratched the tremendous Asiatic and Pacific arena of the present war with Japan.

Repeat neutrals in both wars include Argentina, Afghanistan (illustration, next page), and Europe's three "S" countries—Switzerland, Sweden, and Spain.

Not considered in the above paragraphs are five independent midget states of Europe—Andorra, Liechtenstein, Monaco, San Marino, and Vatican City. Though encircled by or on the borders of Nazi-held lands, all have remained technically neutral. Their combined area is not one-third that of Rhode Island.

NOTE: The neutral nations may be located on the National Geographic Society's new Map of the World.

See also: "Afghanistan Makes Haste Slowly," in the *National Geographic Magazine* for December, 1933; "Life on the Argentine Pampa," October, 1933; "Old Ireland, Mother of New Eire," May, 1940*; "Castles and Progress in Portugal," February, 1938*; "An Unbeliever Joins the Hadj," June, 1934; "Turbulent Spain,"* October, 1936; "Rural Sweden through American Eyes," June, 1940*; "Swiss Cherish Their Ancient Liberties," April, 1941*; and "Transformation of Turkey," January, 1939*.

* * * * *

GAS SHORTAGE PUTS ALLIGATOR INTO OIL BUSINESS

WHILE Uncle Sam's motorists are squeezing every drop of gasoline out of their ration books, Brazilians are supplementing their oil supplies from "alligator gushers" in the jungle-snarled regions of the Amazon River.

The newest motor miracle of Brazil is oil rendered from the liver, intestines, and layers of fatty tissue just under the hides of alligators and their South American cousins, caymans.

Mixed with other motor fuel, alligator gallons are now pinch-hitting for straight gasoline in order to keep taxis, buses, and private cars purring along Brazil's highways.

A lubricant also, the oil can be used in precision machinery. Electric power

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Included in the information on the map are the traditional National Geographic features of clock faces on meridians indicating local time when it is midnight in Greenwich; distinctive colors for colonial empires; icy blue coloration for glaciers and icecaps; and native spellings of place names as well as the English equivalents.

Meanings for Foreign Geographical Terms

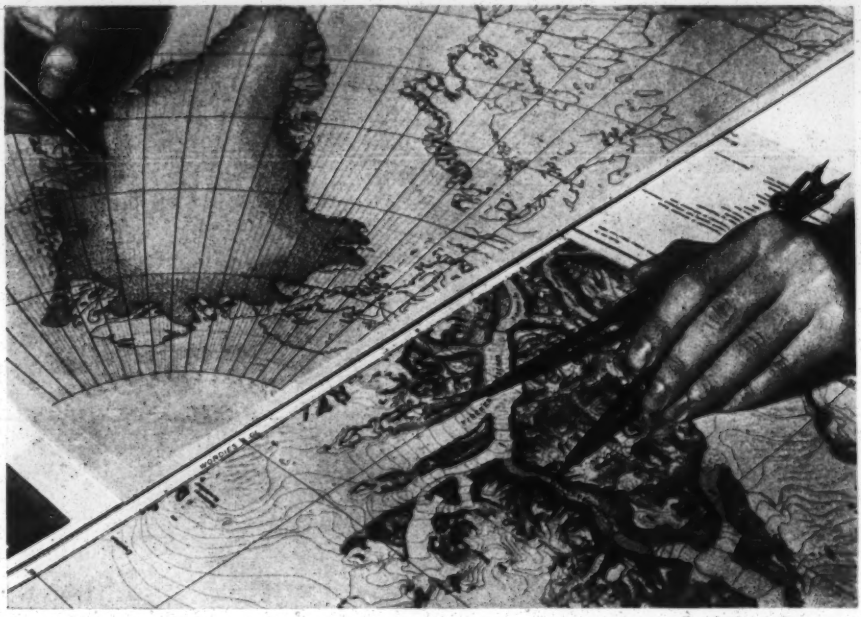
A complete table of various foreign-language terms used for the same geographic features on the map appears at the bottom of the sheet. It shows that "bay" in other lands may become *basi, bahía, baai, baie, bugt, bukhta.* For "mountain" thirteen equivalents are given—*berg, giri, kangri, kilima, kuh, mir, monte, nevado, san, shan, tagh, ula,* and *yama.* This information can prevent such repetitious boners as the well-known "Rio Grande River."

For the first time on any of the Society's world maps, arrows indicate the course of ocean currents, and their relative temperatures are shown as well.

Also for the first time, place names in Brazil are given in the new simplified spelling which Brazil has officially adopted within the past few months. Matto Grosso is now Mato Grosso; Manaos is Manaus; Bello Horizonte is Belo Horizonte; and Victoria and Nichteroy have had their silent c's removed, among other changes, and are, respectively, Vitoria and Niteroi.

NOTE: The Society's New Map of the World was issued as a supplement to the December, 1943, issue of the *National Geographic Magazine.*

Bulletin No. 4, January 3, 1944.



B. Anthony Stewart

KEEPING GREENLAND'S WAISTLINE DOWN IS A PROBLEM FOR WORLD-MAP MAKERS

In any map of the world in one unit, the shape of lands in polar areas is subject to distortion. Greenland, for example, may appear vastly overgrown. The Van der Grinten projection, however, chosen for the National Geographic Society's new World Map, reduces polar distortion and shows Greenland's shape more accurately. Contours from detailed large-scale maps (lower right) are transferred to the island's new portrait (upper left) with the guidance of proportional dividers (right). As the dividers' points measure a distance, the pair of points on their opposite end (set to the correct scale) show automatically what distance should be marked off on the smaller-scale map. A blank white center with ice-blue edges indicates the icecap that buries Greenland's central plateau and feeds icebergs into the North Atlantic.

plants as well dip into the new source to supply their oil needs.

To most North Americans, alligators mean leather. Luggage, shoes, purses, belts, and other leather goods long have been made from their horny hides.

The carcasses, however, have hitherto been considered valueless, except for small bits of meat which have been consumed chiefly by natives. Ordinarily, after the hides were removed, carcasses were burned or thrown back into swamps and rivers for fish food.

When war demands drained the tanks of gasoline-driven launches carrying mail and supplies to villages along the Amazon and its tributaries, the need for a substitute fuel became urgent. Then the alligator was called upon for a new service to mankind. Once-discarded carcasses were saved, even were snatched from bonfires, and drained of their oil. Gasoline-starved motors moved again—so many miles per alligator.

There is no accurate census of alligators in the Amazon region, but Brazilians doubt that their supplemental supply of gas will run dry before regular sources of fuel begin operating again on a normal basis.

NOTE: Brazil is shown on the National Geographic Society's Map of South America.

See also: "Brazil's Potent Weapons" in the *National Geographic Magazine* for January, 1944; "Air Cruising Through New Brazil," October, 1942; "Rio Panorama," September, 1939*; and "Wonder Island of the Amazon Delta," November, 1938*.

See the following GEOGRAPHIC SCHOOL BULLETINS: "Brazil: South American Giant," November 30, 1942; and "Amazon, Largest 'Father of Waters,' Celebrates," February 16, 1942.

Bulletin No. 5, January 3, 1944.

Maynard Owen Williams

MOUNTAINS AND TURKOMAN RIFLES MAKE AFGHANISTAN ASIA'S NEUTRAL CORE

Like Switzerland in a knot of mountain chains in Europe, Afghanistan also is bulwarked by mountains against easy attack. Peaks from 4,000 to 25,000 feet high guard its approaches from India on the east, Iran on the west, and the U.S.S.R. on the north. Pistol-packing tribesmen, too, with a reputation for marksmanship, have spread the impression that an invader would find the conquest of Afghanistan no picnic. Allied with these gun-loving Afghans are the Turkoman tribesmen. The musical-comedy appearance of their sheepskin shakos is belied by their businesslike performance with rifles. A nomadic people, Turkomans in the past have raided Afghan cities, but they have now been absorbed into Afghan militia as a special guard of the provincial governor of Herat, the country's third-largest city. These Turkoman cavalrymen were photographed leaving the compound at Herat.

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